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ON THE  
DIAGNOSIS AND TREATMENT  
OF  
JOINT DISEASES  
IN THEIR  
VARIOUS STAGES.

BY  
LEWIS A. SAYRE, M.D.,  
OF NEW YORK.

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Subject in the Surgical Section at the Annual Meeting of the  
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WITH THE DISCUSSION.

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MR. PRESIDENT AND MEMBERS OF THE BRITISH MEDICAL ASSOCIATION : GENTLEMEN,—I thank you most sincerely for the great honour you have conferred upon my country, and particularly upon myself, by inviting me to open the discussion upon the “Diagnosis and Treatment of Joint-Diseases in their various Stages”. I am personally grateful for this distinguished honour, as it will enable me to clearly define my position in regard to the subject under consideration, which I am anxious to do, inasmuch as some of the views I entertain are at variance with those usually accepted. These views are the outgrowth of personal observation, extending over many years, of numerous cases of joint-diseases which have come under my care. Believing them to be correct, if I am so fortunate as to state them so as to carry conviction to your minds of their accuracy, and thus ensure an application of these principles of treatment at your hands in similar cases, I shall have accomplished my mission.

The time allowed for the discussion of this subject will prevent the consideration of the minute anatomy of the various joints; but in order to understand the general principles of treatment involved in the diseases which we shall discuss, it will be necessary to give a general outline of the structures embraced in the pathological changes. And first, what are the component parts of a perfect joint? They are bone, cartilage, fibro-cartilage, ligaments, and synovial membrane. Some of the joints of which we shall speak, as, for instance, the articulations between the bodies of the vertebrae, have no synovial membrane. The varieties of synarthrosis are not included in this discussion. The ends of bones composing joints have a thin shell of dense tissue overlying a mass of cancellated structure which is exceedingly vascular; and it is owing to this anatomical structure that extravasation of blood in the extremities of bones can readily occur from concussions. The cartilages covering the ends of bones have neither blood-vessels nor nerves that have yet been discovered, and live simply by imbibition or absorption of their nourishment from the rich supply of blood-vessels in the cancellated structures beneath; having, therefore, so little vitality, they easily undergo necrosis or degeneration. The synovial membrane is highly vascular, and hence easily excited to inflammatory action from various causes, particularly by sudden changes of temperature after excessive motion. The ligaments which hold the bones together are of a firm fibrous texture closely attached to the periosteum, and are supplied with blood-vessels, and are liable to be torn, more or less extensively, from their attachments, or severed in their fibres, by severe wrenching or straining; the same as the hawser of a ship, when severely strained, may not break entirely, but a few fibres will be torn, and if only so few as not to be detected, makes the hawser more dangerous than if it had

been completely broken, for then it would have been laid aside as useless.

Before proceeding to the subject of etiology, I wish to state that in my remarks I shall make no reference to syphilitic, rheumatic, or gouty arthritis, but shall confine myself to those diseases of the joints which have been generally called chronic, strumous, tuberculous, fungus articulari, exudation and gelatiniform softening, commonly called scrofulous diseases of the joints. This latter class of diseases is illustrated by the so-called strumous disease of the ankle-joint, white swelling of the knee-joint, hip-joint disease, and Pott's disease of the spine. All of these diseases have generally been considered to be dependent upon and caused by a constitutional dyscrasia. In proof of this, I would quote one of the most distinguished surgical authors of my own country, who says, in speaking of the etiology of morbus coxarius: "It cannot arise in persons healthy in other respects, there must be a constitutional vice as a predisposing cause. The body must be in a state of debility or feebleness. This is my belief, nay, my solemn conviction."....."In the great majority of instances, the affection is of spontaneous origin, and it is not necessary for a blow, or a fall, or any injury, to produce the disease." Further along in the discussion, he goes on to state: "The difference between Dr. Sayre and myself seems to be simply this: he says that hip-disease is almost always of traumatic origin, and not necessarily connected with a vitiated constitution; I, and those who think with me, do not deny that injury may excite the disease; on the contrary, we confess that it frequently does so, but we maintain that the disease is always necessarily connected with a vitiated condition of the system." (*Transactions of the International Medical Congress, Philadelphia, September 1876.*) If this doctrine be true and the theory correct, I would simply ask why it is that so many patients, having recovered from hip-joint disease, are ever afterwards perfectly well and sound. Why is it, that simply having had hip-disease cures this constitutional taint? That this doctrine is not true I am positive, and I base my opinion upon facts obtained from the study of many cases where there was unquestionably disease of the hip-joint, some of them resulting in caries requiring exsection for the removal of the disease, after which the general health has been thoroughly restored and many of them have become vigorous and robust, showing no taint of scrofula, struma, or any other constitutional vice. Many of the cases can be traced in their family history for generations back, without a single taint of struma, scrofula, or any other debilitating affection. A case of this kind, most marked, was placed under my treatment by Mr. William Adams, with undoubted disease of the hip-joint of many months' standing. The case had also been seen by Sir James Paget, who confirmed the diagnosis. The patient has now recovered without deformity and with perfect motion. In this particular case, the family history, for several generations, is remarkable for the longevity and robustness of its members. In no branch of the family is there a trace of consumption, except by intermarriage. Many of these facts are obtained from Burke's *Landed Gentry*, and hence are reliable. One positively ascertained fact of this kind must necessarily be accepted as a successful refutation of any or all theories in opposition to it. I have the records of many cases precisely similar to the one just referred to, but the accuracy of their family history for so many generations cannot be vouched for, as in the case referred to, because, in my country, the genealogical record of families is not so accurately preserved.

Struma, scrofula, or a vitiated condition of the general system, from whatever cause, is the modifying influence of the disease in the joint,



but not the cause of the disease. The disease itself is the result of traumatism, generally so slight as to be unobserved at the time the injury is received. If the traumatism be a concussion, an extravasation of blood occurs, which, not being observed, undergoes degenerative changes, and thus becomes a foreign body; or the cartilage may be slightly loosened from its attachment, and having naturally but feeble vitality, becomes necrotic, and it again is a foreign body; or a severe wrench, tearing from their attachment some of the fibrous tissues, causing an exudation of serum or blood, which not being absorbed for want of sufficiently long rest, undergoes degenerative changes, and thus becomes a foreign body; or the synovial membrane being irritated or inflamed from whatever cause, produces an abnormal secretion, and thus makes a deviation from the perfectly normal state.

In either of the instances of traumatism we have just described, we have the nidus, or the starting-point of a chronic inflammation. This is particularly the case if the injury be very slight, so slight in fact as not to attract observation, because then the proper treatment for restoration is not applied at the time the injury is received; if it were, in the great majority of instances, these cases would result in a speedy recovery. If the accident were more severe, sufficient to excite an acute inflammation, it would attract attention, and, by proper treatment, would probably result in an early recovery; but being so slight as not to be noticed, motion and exercise are continued until serious damaging changes have taken place.

Now, if the individual thus injured be in a robust vigorous condition and of healthy parentage, he may have recuperative power sufficient, with proper treatment, to restore him to health without suffering any constitutional disturbance. But even this person in robust health, if the injury be so slight as not to attract attention, his usual avocations and exercise being continued, instead of repair taking place, degenerative changes are instituted, and chronicity of the disease is the consequence. The degenerative processes going on in and about the joint thus slightly injured produce constitutional disturbances before the local manifestations are such as to attract attention; so that, when the medical attendant detects the local trouble, he finds it also connected with a constitutional dyscrasia, and the local manifestations are, to his mind, the result of this constitutional condition; instead of which, the constitutional condition observed by him is the result of long-continued disease which had been unsuspected, and hence neglected.

Take, for instance, diseases of the spine; long before there is any deformity that attracts attention, the patient has suffered from neuralgic pains in different parts of the body distant from the spine, and generally are not brought for treatment until the deformity is conspicuous, which could not possibly occur until absorption of the bodies of the vertebræ had taken place—an evidence that the disease had existed a long time before medical advice was sought. So, too, with disease of the hip-joint; months or even years elapse before medical advice is sought for the treatment of the hip-disease, attention having been paid even by medical attendants to the knee, which they have covered with iodine and narcotic poultices. This serves as an illustration of the principle which I wish to inculcate.

Now, if the person thus slightly injured be of a strumous diathesis, either inherited or acquired, or if his system be vitiated, enfeebled, or broken down from any cause, the degenerative changes in the joint involved will go on with more rapidity and lead to more disastrous results, than if he had been in a healthy condition at the time of the accident. But even the most decidedly strumous, or scrofulous, must receive some

local injury to the joint where these destructive changes manifest themselves ; for the scrofula or struma, the constitutional dyscrasia, by whatever name you may call it, involves the entire system—muscular, vascular, nervous, and osseous ; and that there should be degenerative changes taking place in one or other particular joint of the body must necessarily be the result of some exciting cause impinged upon the point involved. If scrofula were the essential cause of this disease, as stated by the author above quoted, and almost all of our surgical authors, why is it that so many millions of children with scrofula die from other causes without developing any joint-disease ?

No man admits more fully than myself the modifying influence of the strumous or scrofulous diathesis ; but that this condition does not produce disease of any joint *spontaneously*, or without some exciting cause, is my firm conviction. It requires the exciting cause of traumatism to give rise to the local manifestations of this dyscrasia. By traumatism, I do not mean the necessity of a rail-road accident or a fall from St. Paul's church ; but any accident, no matter how slight, that can produce a rupture of tissues—whether from falling over a footstool, or even a door-sill. Even these slight accidents in enfeebled children often terminate in most serious destructive changes.

Before proceeding further, let us try and come to some understanding as to what is meant by the term "scrofula". If the question were asked this learned body, probably there would be as many answers as there are members present. There is a peculiar condition of the system, with enlarged glands, weak muscular fibre, sore eyes, thick lips, chronic supuration from the ears, all the evidences of *malnutrition*, which, by common consent, we all include under the term scrofula. Some assert that this ill-defined condition must necessarily be inherited ; that it is impossible for it to be acquired. If this doctrine were true, it would necessarily involve the tracing back of the scrofulous constitution through the generations of the past ages to Adam, the founder of the human race ; and consequently every human being, both male and female, would necessarily be tainted with this inherited condition. The probability of this state of affairs is too absurd for belief ; and hence I maintain that this general constitutional dyscrasia, which we have by common consent called scrofula for want of a better term, can be, and frequently is, acquired by persons of a healthy ancestry, by living in violation of hygienic laws. Bad air, bad food, insufficient amount of nutrition and clothing, sleeping in damp badly-ventilated rooms, want of cleanliness, and the frequent intermarriage of persons living under these deteriorating influences, will produce a condition which cannot be in any way distinguished from that which has generally been recognised as inherited scrofula. It will, therefore, be seen that this condition of the system, which has by common consent been termed "scrofulous", can be created by living in violation of the laws of health. That this condition, no matter how produced, whether inherited or acquired, necessarily modifies any disease or accident from which the patient may be suffering, all must, I think, admit.

Take the athlete or pugilist, who is, as you call it in this country, in the condition of "perfect form". He receives injuries, severe blows, wrenches, strains, or contusions, frequently with but slight extravasations of blood, or none at all, his tissues being in such a condition that the vessels do not rupture ; but if the vessels do rupture and blood be extravasated, it is absorbed in a short space of time before degenerative changes have taken place. In this condition of maximum health, the reparative processes take place instead of the degenerative. Now, this same athlete or pugilist, by leading a different mode of life—frequent

debauches, imprudent diet, want of his accustomed exercise, and a vicious mode of life—may bring his previously splendid constitution into exactly that condition which has generally been understood as scrofulous. When in this latter condition, the same blows or contusions which he could before resist without difficulty now terminate in serious constitutional disturbances.

Some authors have attempted to describe these diseases as chronic, as if the simple element of time had anything to do with the nature of the disease. Most of these cases are chronic, owing to the simple reason of their feeble origin; the traumatism being so slight as to excite but very feeble disturbed action. Had a more severe injury been sustained, the whole trouble would have been rapidly developed, and thus gone through its various stages with greater rapidity, because a larger number of elements would have been engaged in the destructive processes. In either case, it is simply irritation producing inflammation and its necessary consequences, only differing in degree.

Take the poor man unaided and alone, with his wheelbarrow and shovel, who digs out the cellar, lays the foundation, and constructs his humble dwelling without assistance. He would certainly be a long time in doing it. If as many workmen as could advantageously have been employed had aided him in digging his cellar and constructing his house, the work would have been accomplished in a much shorter period of time. The rapidity of the construction of the house would depend upon the amount of force occupied in the work. So with these diseases; if but few elements are involved in the structural changes, more time will elapse before they will have accomplished their ultimate destructive metamorphoses than if a greater injury had been sustained; showing, therefore, that chronicity has nothing to do with the character of the disease.

Whenever these injuries occur, they produce an abnormal condition of the system which we term "irritation", which gives rise to muscular contractions, thereby limiting the movements of the joints and parts involved, and causing characteristic changes in the form and position of the body, or the joint, or the limb involved. This peculiar muscular rigidity, which has been called reflex muscular contraction, persists and continues until the termination of the disease. It is one of the essential elements which aggravates the difficulty by causing undue pressure upon the parts inflamed, and leading to interstitial absorption and necrotic changes from diminution of the normal blood-supply. The bed-sore on the heel, on the sacrum, and on the scapula is the result of pressure interfering with the nutrition of the part. So this reflex muscular contraction creates undue pressure upon parts brought in contact, and produces the same result.

We hence see the absolute necessity of extension and counter-extension to overcome these reflex muscular contractions in the treatment of all chronic joint-diseases. Great errors have been made in the application of this principle by making the extension beyond the point required, for then tension or traction is made upon the ligamentous structures that hold the bones together, and one of the most essential principles in the treatment of these cases becomes one of the most destructive agents. Consequently extension and counter-extension should only be carried to the point of relieving the diseased parts from pressure, which is to be decided by the *comfort* of the patient; and when this point is reached the parts should be there secured, and maintained in this position of perfect comfort.

Rest, as perfect and complete as can be given to the parts involved in the disease, is the next most essential element of treatment. As the

diseases of which we are speaking run a chronic course, and therefore a long time must elapse before recovery can take place, the rest obtained to the part involved, by the confinement of the whole body to the bed for months or years, as the case may be, is detrimental to the general health of the patient. If, therefore, we can by any mechanical contrivance or artificial means secure this perfect and complete rest to the involved joint or parts involved in the disease, and at the same time allow the patient to take free exercise in the open air, we have put him in the best condition to overcome the constitutional dyscrasia from which he is suffering, whether this constitutional condition was a scrofulous diathesis existing previous to the disease, or whether this similar condition had been caused by the disease. For by exercise the appetite is improved, the fresh air begets a healthy action in the system, which, together with a generous and nutritious diet, does more to eradicate the so-called scrofulous diathesis than any course of medication yet devised.

If, as has been stated, it has been proved by the microscope, that minute doses of mercury add to the number of the red blood corpuscles, and then in these minute doses, it may be considered a most valuable tonic. Iron, cod-liver oil, and quinine may also be added frequently with advantage. In some of the joints we have a capsular ligament, and in these there is a period in their treatment when motion becomes as essential an element of treatment as rest in the earlier stages of the disease. If this fact be disregarded in their treatment, the result will be ankylosis. In the majority of cases of diseases of the joints, if detected in their earlier stages, by carrying out the general principles of treatment above described, they will generally recover with little or no deformity and motion more or less complete.

If the effusion be very great, in addition to rest, extension and counterextension, blisters, counterirritation, and the internal administration of such remedies as will promote the absorption of the effused fluid, are requisite. Friction and elastic compression are also essential elements in the treatment of these diseases in certain stages. If the effused fluid have undergone degenerative metamorphosis, it should be evacuated by means of the aspirator, if possible. If, however, the contents cannot escape by the aspirator, then the joint should be freely incised under the antiseptic spray, and carefully washed out and dressed according to the principles so admirably described by Mr. Lister.

If the disease have progressed to caries or necrosis before it comes under observation, it is frequently accompanied with one or more tortuous sinuses which afford but an insufficient exit to the morbid materials, and hence it is possible, by means of a free incision in the right direction, to facilitate the exit of the discharges, and then by following out the general instructions above given, repair may take place with more or less deformity and partial or complete ankylosis. But in this latter condition of caries or necrosis, after having given the patient the benefit of the treatment just recommended, and the disease still goes on progressively, showing the extent of disease to be so great, or, that the constitution of the patient is so bad that he will probably succumb before the escape of the diseased bone could be effected by the slow process of exfoliation; then, exsection and complete removal of the diseased parts is our only remedy. This, when done properly, and with proper after-treatment, will frequently yield the most satisfactory results. In the knee, we have a splendid limb with ankylosis; in the ankle, hip, elbow, and wrist, we frequently have fine results with but slight deformity and very nearly complete motion.

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Dr. BARTON (Dublin) wished to say one or two words with regard to the essential point of Dr. Sayre's paper; viz., with regard to the disease called *morbus coxarius*. He had in his hospital a children's ward, to which a great many cases of this disease were admitted. He had made careful inquiries as to the cases and their origin, and was convinced that, on the whole, Dr. Sayre's theory was correct—that this disease arose from some injury, and took its tone afterwards from the particular diathesis. Those cases varied very much, according to the strumous tendency or otherwise; but had not their origin in that, but in some injury, accidental or otherwise.

Dr. HODGEN (St. Louis) desired as far as possible to settle the difficulty that seemed to exist between Professor Gross and Professor Sayre. Dr. Sayre said that it was utterly impossible that *morbus coxarius* could be regarded as being derived from scrofulous parents. Dr. Gross said that it was impossible that local injury could produce it. Now, it might appear that those two propositions were very different; and yet to him (Dr. Hodgen) it appeared that they were not greatly opposed; for it seemed that Dr. Gross only insisted that, without a constitutional condition favourable to that particular disease, that particular disease could not occur; while Dr. Sayre said that the existence of a peculiar condition of liability to the disease was greatly increased when the individual was subjected to an accident. Both would accept this proposition: that, if there were not this condition of the system rendering it liable to this particular disease, no amount of force would develop it; and that, when a certain condition of the system existed, a very trifling injury would cause *morbus coxarius*. Dr. Sayre had very clearly said that, if he were to put the question to the audience, and make inquiry as to what scrofula was, he would probably get as many answers as there were members present; and, as he took it, that meant that no one had as yet reached the foundation of this disease; that its pathological change was not distinctly known; and that the various conditions on which it was dependent had not been traced. They went back to the ancestry, and said that scrofula was inherited; that it depended on the early marriage of both parents, or on one being old and the other young; or that the child was the last of a numerous progeny, born in the old age of the parents; and that those conditions might determine the existence of the disease. Again, it might be said that it might be developed by certain conditions of a different character; and he should say that, unfortunately, in Ireland, from what he had seen during the past week, the conditions were far more favourable to the development of scrofula than in his own country. Absence of sunshine, residence in an atmosphere supercharged with moisture, residence in hovels such as he had seen about Cork, the food used by the poorer class of people, all these, with other matters, must be very conducive to scrofula. Then again, there were a great many things which were called scrofulous. Running from the ear was scrofulous; thinning of the hair was scrofulous; a peculiarly transparent complexion, an abnormally large pupil of the eye, were evidences of scrofula. So far as its development was concerned, its transmission from parent to offspring, its presentations were multifarious; and the expression was applied to a great variety of conditions.

Dr. E. H. BENNETT (Dublin) said that the opinions of surgeons were very much with Dr. Sayre, especially with reference to the traumatic origin of joint disease as contrasted with its strumous origin. He would wish to say a word about what Dr. Sayre had referred to as a classifica-

tion of joint-disease into traumatic, gouty, syphilitic, and scrofulous. The rheumatic and gouty anatomic changes in this disease were well known and recognised. He would like to ask Dr. Sayre as to his knowledge of syphilitic disease in the joints. Did it ever produce a tangible articular change in the joint? He had not seen such, and he thought the authors overstated the frequency with which it existed. He did not know what changes it produced in the articular surfaces. With reference to scrofulous disease, he thought that the term "scrofulous" applied to such disease was simply a blind, and nothing more. They could recognise tubercular disease in joints definitely, and no doubt this had fallen into the same category as what was known as scrofulous. Nélaton had long ago shown that. He had never seen it in the hips, but had often and often seen it in the spine. They should, he thought, have a distinct name for those diseases, and not put them all under the name of scrofula.

Mr. OWEN (London) agreed with Dr. Bennett that the term "scrofula" was too often and too widely applied. He believed that if a man were badly fed and badly clothed, even without injury, disease might attack the joints. He was of opinion that Dr. Sayre went too far in saying that each case required an exciting cause. Dr. Sayre also said that he was disinclined to believe that those cases were of strumous origin because so many of them recovered; but surely, if a man having strumous disease of the testicles could recover when they were removed, strumous disease of the joint might be just as curable.

Dr. MACWEN (Glasgow), referring to the splint which had been exhibited, said it was excellent, and appeared to be a thoroughly practicable one. With regard to the principle of counterextension, he should say that it had been a long time in practice in Glasgow, but not by means of a special splint. Certainly, this was a very finished and admirable contrivance. He had had five cases of wrist-excision, four of them after Lister, and he believed the mode of excision by Lister was a very admirable one. The first patient he had recovered in about four weeks; he was able in five weeks to write his name, and in two months he was able to go back to his profession, which unfortunately was to put his fingers into other people's pockets. The next patient he had was able to go about in three months; the other cases were under treatment still, and were progressing favourably.

Dr. WHEELER (Dublin) said that they all admitted the value of Dr. Sayre's paper, but there was one portion with which he could not agree, and that was with regard to the effects of motion in joint diseases. He would like to know Dr. Sayre's experience as to cases in which it would be advisable to cause motion. If it were competent for him to speak on another point—viz., Mr. Fagan's paper—he should say that his suggestions had been carried into effect in the City of Dublin Hospital. He thought, however, that in cases of children, in which repair would be carried on so actively, they should be very slow to excise joints. Children often recovered without such excision; and if Mr. Fagan had tried the expectant treatment for some time longer, perhaps there might be a better result. With regard to family history in strumous or scrofulous cases, he thought they need not dwell on that, for whether it was acquired or was dependent on parentage was indifferent.

Mr. WM. ADAMS (London) agreed with Dr. Hodgen, that there was no very wide difference between Dr. Sayre and Dr. Gross on the subject of scrofula. He himself had been in favour of the traumatic origin of the disease, but he also felt that it must be grafted on the constitutional. He had had opportunities of seeing a good deal of the practice in America—and he should say that Dr. Sayre and his friends had

been very kind to him while he was there—and he had in his practice since carried out a great deal of what he had seen in New York, Philadelphia, and elsewhere. He had largely adopted the extension principle. The treatment in this country seemed to lead to immobility, fixation, and ankylosis; but the American gentlemen allowed that motion which prevented ankylosis, and he thought that surgeons in this country had a good deal to learn in that respect.

Dr. GOODING (Cheltenham) asked whether in America the bone-setters flourished as they did in this country. Here the medical men and surgeons left nearly the whole of the practical work to the bone-setters.

Dr. SAYRE said it would be better to commence at the last of the questions put to him and go back to the first. They had a race of bone-setters in America as well as anywhere else. There was a Swedish family which had practised bone-setting for the past two hundred years nearly, and they had achieved a wonderful reputation. In many instances, they had done more good than could possibly be imagined by curing ankylosed limbs that had been neglected by the regular profession; and that was the reason why, in his lecture-room, he insisted strongly that there was a time for motion as well as a time for rest. He believed that medical students should be instructed in those matters by their teachers, so that the medical profession should know at least as much as the quacks. They would fail in their duty to the students if they did not teach them that motion was necessary at the proper time. He had seen many cases of fibrous ankylosis which had been neglected by the medical profession cured by quacks. They certainly should try to do as well as that. His idea was, that in all cases of inflamed joints the first principle was rest, as absolute and complete as it could be made for the individual joint involved in the disease; and the next thing was to prevent the muscular contraction that would always take place wherever there was inflammation. There should be extension of the part, just such as would prevent pressure, and no more; otherwise, destructive changes would go on. Take the case of the capsular ligament in hip-disease. The capsule was not involved in the disease at first. They would not want to confine that capsule by a porous bandage or any other immobile bandage, for if they did it would become ankylosed. Any joint would become ankylosed sooner or later without inflammation. The joint, unless ankylosis were prevented, assumed an abnormal condition, and motion was as necessary for it as for the movement of the muscles. Anatomical change would take place, and the destructive progress would go on. The speaker described one case of disease of the hip-joint which he saw. The medical man attending the case was completely deceived; there was no pain on pressure and no deformity, and that misled the eminent surgeon. The cause of there being no pain, however, was that the acetabulum had been completely eaten away by the disease. This principle of complete rest he (Dr. Sayre) did not believe in; but he thought it would be well if rest could be given to the parts below and above, so that the pressure might be taken away. If extension were made so as to prevent contraction, perfect movement would at the same time be secured without any difficulty. As to the subject of scrofula and struma, the more he had heard, the more he was confirmed in his opinions. He looked upon it simply as the result of malnutrition: bad air, bad clothing, bad diet. It was a disease, he believed, which could be produced by excessive diet as well as by want of food, by putting into the stomachs more food than could be assimilated or appropriated at one time. The two extremes would meet in producing the same result, because it was an abnormal

mode of life. With regard to the disease being inherited, he remembered one case bearing on the subject. Dr. Nott, formerly of Alabama, one of the most distinguished men in America, an all-round man—good physician and good surgeon—was attending a case of midwifery, and he (Dr. Sayre) went with him. While attending to the woman, he saw the old woman—the nurse—holding the baby with its legs wide apart. He cried out to her, and made her stop such a proceeding. What was the result? In six months he was called in to see the child with Dr. Nott, and it had disease of both hip-joints. There was a case in which the advocates of the theory of transmission from the parents would have a most powerful example, because the mother in that case was affected also with disease. The cases of the three children treated by Dr. Jones, he thought, also told powerfully in favour of his theory. As to the instruments and machinery used for the purposes of extension, he did not care what they were, so long as their fundamental principle was observed. He had been asked about syphilitic disease of the joint, but he knew nothing about that. Inasmuch as constitutional treatment would come in there, local treatment would be only of secondary importance. He thought the chair exhibited by Mr. Steele was excellent, but it was the same principle all through.

On the motion of Mr. MORGAN, a vote of thanks was unanimously passed to Dr. Sayre for his valuable paper.

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